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| 09/859,501      | 05/18/2001  | Yoshihisa Soeda      | 208707US-2          | 5037             |

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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

THOMPSON, JAMES A

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
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2624

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                              |  |
|------------------------------|-------------------------------|------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>09/859,501 | Applicant(s)<br>SOEDA ET AL. |  |
|                              | Examiner<br>James A. Thompson | Art Unit<br>2624             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2005 and 07 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 9-14 and 19-20 is/are rejected.
- 7) ☒ Claim(s) 5-8 and 15-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| <p>1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br/>Paper No(s)/Mail Date <u>9/7/05</u>.</p> | <p>4) <input type="checkbox"/> Interview Summary (PTO-413)<br/>Paper No(s)/Mail Date. _____</p> <p>5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)</p> <p>6) <input type="checkbox"/> Other: _____</p> |
|---|--|

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 19 July 2005 have been fully considered but they are not persuasive.

Applicant's arguments are directed to the present amendments to the claims. The amendments to the claims, along with Applicant's discussion of said amendments, have been fully considered by Examiner and are dealt with below.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464) and Yamamoto (US Patent 5,111,311).

**Regarding claims 1 and 11:** Tamura discloses an image reading device (figure 1 of Tamura) comprising a photoelectric device (figure 1(3) of Tamura) including a plurality of pixels (column 4, lines 61-67 of Tamura) provided with an empty transfer part (figure 1(34) and column 4, lines 61-63 of Tamura); an A-D converter (figure 1(5(portion)) of Tamura) performing A-D conversion on an output signal for each pixel of said photoelectric device (column 5, lines 1-2 of Tamura); and a

Art Unit: 2624

reference voltage varying part (figure 1(5(portion)) of Tamura) varying a reference voltage of said A-D converter (column 5, lines 2-7 of Tamura). The A/D converter (figure 1(5) of Tamura) disclosed by Tamura clearly has two distinct part, which would be embodied in two distinct areas of circuitry, as demonstrated by the two distinct functions that are performed. One part performs the essential analog-to-digital conversion (column 5, lines 1-2 of Tamura). The second part performs the varying of the reference voltage so that the highest reference voltage corresponds to the white reference data and the lowest reference voltage corresponds to the black reference data (column 5, lines 2-7 of Tamura).

Tamura further discloses a detecting part (figure 1(6) of Tamura) detecting a black correction reference data from an output signal for each pixel of said photoelectric device (column 5, lines 21-27 of Tamura).

Tamura does not disclose expressly a black shading correcting part subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read, through said A-D converter having the reference voltage set therein; and a correcting part correcting the black correction reference data by a ratio between a first digital black level value obtained from an output voltage level of said empty transfer part obtained through said A-D converter when the black correction reference data is detected and a second digital black level value obtained from an output voltage level of said empty transfer part obtained through said A-D converter when the image is read.

Art Unit: 2624

Ito discloses a black shading correcting part (figure 2 (206) of Ito) subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read (column 19, lines 5-11 and column 3, lines 55-57 of Ito), through said A-D converter having the reference voltage set therein (column 14, lines 3-9 of Ito); and a correcting part (figure 2(204) of Ito) correcting the black correction reference data by a ratio (column 19, equation 4 of Ito) between a first digital black level value ( $T_0$ ) (column 18, lines 49-55 of Ito) obtained from an output level of said empty transfer part obtained through said A-D converter (column 18, lines 53-55 of Ito) when the black correction reference data ( $G_0$ ) is detected (column 18, lines 27-31 of Ito) and a second digital black level value ( $T$ ) obtained from an output level of said empty transfer part obtained through said A-D converter (column 18, lines 58-62 of Ito) when the image is read ( $G_n$ ) (column 18, lines 27-31 and lines 60-62 of Ito).

Tamura and Ito are combinable because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said black shading correcting part and said correcting part taught by Ito in the correction of the image data and the black correction reference data. The motivation for doing so would have been to prevent the interference of dark-state-output data on the overall scanner signal, thus preventing degradation of the resultant image signal (column 2, lines 6-16 of Ito). Therefore, it would have been obvious to combine Ito with Tamura.

Art Unit: 2624

Tamura in view of Ito does not disclose expressly that said output level of said empty transfer part is specifically an output voltage level of said empty transfer part.

Yamamoto discloses a digital black level value in the form of a specific voltage level (column 4, lines 47-52 of Yamamoto).

Tamura in view of Ito is combinable with Yamamoto because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a voltage for said first and second digital black level values, and thus the output level of said empty transfer part. The suggestion for doing so would have been that voltage levels are common formats for denoting light levels in image scanners, such as black reference levels. Therefore, it would have been obvious to combine Yamamoto with Tamura in view of Ito to obtain the invention as specified in claims 1 and 11.

**Regarding claims 2 and 12:** Tamura discloses an image reading device (figure 1 of Tamura) comprising a photoelectric device (figure 1(3) and column 4, lines 57-60 of Tamura) including a plurality of pixels (column 4, lines 61-67 of Tamura) and an empty transfer part (figure 1(34) and column 4, lines 61-63 of Tamura); and an empty transfer part output generating part (figure 1(4) of Tamura) falsely generating an output of the empty transfer part of said photoelectric device by outputting a predetermined voltage in predetermined timing (column 4, lines 61-67 of Tamura). Said empty transfer part output generating part is a CCD line sensor, which inherently outputs a predetermined voltage, namely the black reference data read by said CCD, in predetermined timing, namely a timing

Art Unit: 2624

corresponding to the line-by-line reading of the document data by said photoelectric device.

Tamura further discloses an A-D converter (figure 1(5 (portion)) of Tamura) performing A-D conversion on an output signal for each pixel of said photoelectric device (column 5, lines 1-2 of Tamura); and a reference voltage varying part (figure 1(5(portion)) of Tamura) varying a reference voltage of said A-D converter (column 5, lines 2-7 of Tamura). The A/D converter (figure 1(5) of Tamura) disclosed by Tamura clearly has two distinct part, which would be embodied in two distinct areas of circuitry, as demonstrated by the two distinct functions that are performed. One part performs the essential analog-to-digital conversion (column 5, lines 1-2 of Tamura). The second part performs the varying of the reference voltage so that the highest reference voltage corresponds to the white reference data and the lowest reference voltage corresponds to the black reference data (column 5, lines 2-7 of Tamura).

Tamura further discloses a detecting part (figure 1(6) of Tamura) detecting a black correction reference data from an output signal for each pixel of said photoelectric device (column 5, lines 21-27 of Tamura).

Tamura does not disclose expressly a black shading correcting part subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read, through said A-D converter having the reference voltage set therein; and a correcting part correcting the black correction reference data by a ratio of a first digital black level value obtained from an output voltage level of said empty transfer part output generating part obtained through said A-D converter

Art Unit: 2624

when the black correction reference data is detected and a second digital black level value obtained from an output voltage level of said empty transfer part output generating part obtained through said A-D converter when the image is read.

Ito discloses a black shading correcting part (figure 2 (206) of Ito) subtracting the black correction reference data from digital image data obtained from the output signal for each pixel of said photoelectric device when an image is read (column 19, lines 5-11 and column 3, lines 55-57 of Ito), through said A-D converter having the reference voltage set therein (column 14, lines 3-9 of Ito); and a correcting part (figure 2(204) of Ito) correcting the black correction reference data by a ratio (column 19, equation 4 of Ito) of a first digital black level value ( $T_0$ ) (column 18, lines 49-55 of Ito) obtained from an output level of said empty transfer part output generating part obtained through said A-D converter (column 18, lines 53-55 of Ito) when the black correction reference data ( $G_0$ ) is detected (column 18, lines 27-31 of Ito) and a second digital black level value ( $T$ ) obtained from an output level of said empty transfer part output generating part obtained through said A-D converter (column 18, lines 58-62 of Ito) when the image is read ( $G_n$ ) (column 18, lines 27-31 and lines 60-62 of Ito).

Tamura and Ito are combinable because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use said black shading correcting part and said correcting part taught by Ito in the correction of the image data and the black correction reference data. The motivation for doing so would have been to prevent the interference of dark-state-output data on the



Art Unit: 2624

overall scanner signal, thus preventing degradation of the resultant image signal (column 2, lines 6-16 of Ito).

Therefore, it would have been obvious to combine Ito with Tamura.

Tamura in view of Ito does not disclose expressly that said output level of said empty transfer part is specifically an output voltage level of said empty transfer part.

Yamamoto discloses a digital black level value in the form of a specific voltage level (column 4, lines 47-52 of Yamamoto).

Tamura in view of Ito is combinable with Yamamoto because they are from the same field of endeavor, namely correction of digital image scanning data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to specifically use a voltage for said first and second digital black level values, and thus the output level of said empty transfer part. The suggestion for doing so would have been that voltage levels are common formats for denoting light levels in image scanners, such as black reference levels. Therefore, it would have been obvious to combine Yamamoto with Tamura in view of Ito to obtain the invention as specified in claims 2 and 12.

4. Claims 3-4 and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464), Yamamoto (US Patent 5,111,311), and Barron (US Patent 5,659,355).

**Regarding claims 3, 4, 13 and 14:** Tamura discloses that said photoelectric device comprises a contact-type sensor (figure 1(4(portion))) and column 4, lines 65-67 of Tamura) which receives reflected light from an original through an optical system (figure 1(33) and column 4, lines 57-60 of Tamura). The

Art Unit: 2624

plurality of individual Charge Couple Devices (column 4, lines 65-67 of Tamura) comprise the portion of the CCD line sensor that directly receives the reflected light (column 4, lines 57-60 of Tamura).

Tamura in view of Ito and Yamamoto does not disclose expressly that said contact-type sensor and said optical system are both unity magnification.

Barron discloses that the closed-loop gain of the entire imaging system (figure 2 of Barron) should be set at exactly a unity gain (column 3, lines 24-29 of Barron).

Tamura in view of Ito and Yamamoto is combinable with Barron because they are from the same field of endeavor, namely digital image data processing for scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to maintain a unity gain, as taught by Barron, by ensuring that the contact-type sensor and the optical system taught by Tamura are kept at a unity gain. The motivation for doing so would have been that a unity gain is necessary to calibrate the system (column 3, lines 24-27 and lines 34-38 of Barron). Therefore, it would have been obvious to combine Barron with Tamura in view of Ito and Yamamoto to obtain the invention as specified in claims 3, 4, 13 and 14.

5. Claims 9-10 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tamura (US Patent 5,943,141) in view of Ito (US Patent 5,442,464), Yamamoto (US Patent 5,111,311), and Shigeeda (US Patent 5,900,948).

**Regarding claims 9 and 19:** The arguments regarding claims 1 and 11 are incorporated herein.

Art Unit: 2624

Tamura in view of Ito and Yamamoto does not disclose expressly an image forming device forming an image on a sheet based on the image data read by said image reading device.

Shigeeda discloses an image forming device (figure 1(15) of Shigeeda) forming an image on a sheet based on the image data read by an image reading device (column 6, lines 33-35 of Shigeeda).

Tamura in view of Ito and Yamamoto is combinable with Shigeeda because they are from the same field of endeavor, namely digital image data processing for scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output the resultant image data processed by the device of Tamura in view of Ito to an image forming device, as taught by Shigeeda. The motivation for doing so would have been that said image forming device provides a hard copy of the processed image (column 7, lines 1-4 of Shigeeda). Therefore, it would have been obvious to combine Shigeeda with Tamura in view of Ito and Yamamoto to obtain the invention as specified in claims 9 and 19.

**Regarding claims 10 and 20:** The arguments regarding claims 2 and 12 are incorporated herein.

Tamura in view of Ito and Yamamoto does not disclose expressly an image forming device forming an image on a sheet based on the image data read by said image reading device.

Shigeeda discloses an image forming device (figure 1(15) of Shigeeda) forming an image on a sheet based on the image data read by an image reading device (column 6, lines 33-35 of Shigeeda).

Tamura in view of Ito and Yamamoto is combinable with Shigeeda because they are from the same field of endeavor,

Art Unit: 2624

namely digital image data processing for scanners. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to output the resultant image data processed by the device of Tamura in view of Ito and Yamamoto to an image forming device, as taught by Shigeeda. The motivation for doing so would have been that said image forming device provides a hard copy of the processed image (column 7, lines 1-4 of Shigeeda). Therefore, it would have been obvious to combine Shigeeda with Tamura in view of Ito and Yamamoto to obtain the invention as specified in claims 10 and 20.

***Allowable Subject Matter***

6. Claims 5-8 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

The reasons for the indication of allowable subject matter have been given in detail on pages 11-12 of a previous office action, dated 29 December 2004. Further, Examiner has not since found any additional prior art that would anticipate, or render obvious to one of ordinary skill in the art at the time of the invention, the present claims.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
13 September 2005

James A. Thompson  
Examiner  
Art Unit 2624



THOMAS D.  
~~TOMMY~~ LEE  
PRIMARY EXAMINER